DEPARTMENT of ENVIRONMENTAL SERVICES
Water Supply & Pollution Control Division - Biology Bureau

LAKE TROPHIC DATA

MORPHOMETRIC:

Lake:	COBBETTS POND, STN 1	Lake Area (ha):	139.50
Town:	WINDHAM	Maximum depth (m):	19.2
County:	Rockingham	Mean depth (m):	5.2
River Basin:	Merrimack	Volume (m^3):	7208000
Latitude:	42°48' N	Relative depth:	1.4
Longitude:	71°17' W	Shore configuration:	1.77
Elevation (ft):	177	Areal water load (m/yr):	---
Shore length (m):	7400	Flushing rate (yr^{-1}):	0.40
Watershed area (ha):	828.8	P retention coeff.:	0.80
% watershed ponded:	0.0	Lake type:	natural w/dam

BIOLOGICAL:	5 March 1987	22 July 1986
DOM. PHYTOPLANKTON (% TOTAL) #1	ASTERIONELLA 53%	DINOBRYON 40%
#2	RHIZOSOLENIA 25%	ASTERIONELLA 35%
#3		FRAGILARIA 10%
PHYTOPLANKTON ABUNDANCE (cells/mL)		815.0
CHLOROPHYLL-A (µg/L)		4.30
DOM. ZOOPLANKTON (% TOTAL) #1	POLYARTHRA 47%	NAUPLIUS LARVAE 49%
#2	KERATELLA 26%	KERATELLA 24%
#3		
ROTIFERS/LITER	68	48
MICROCRUSTACEA/LITER	11	92
ZOOPLANKTON ABUNDANCE (#/L)	78	140
VASCULAR PLANT ABUNDANCE		Abundant
SECCHI DISK TRANSPARENCY (m)		6.3
BOTTOM DISSOLVED OXYGEN (mg/L)	9.6	1.0
BACTERIA (fecal col., #/100 ml) #1		< 10
#2		
#3		

SUMMER THERMAL STRATIFICATION:

stratified

Depth of thermocline (m): 7.0
Hypolimnion volume (m^3): 385000

CHEMICAL:

Lake: COBBETTS POND, STN 1
Town: WINDHAM

	5 March 1987		22 July 1986		
DEPTH (m)	4.5	9.0	2.0	8.0	13.0
pH (units)	6.9	6.8	7.4	7.1	6.6
A.N.C. (Alkalinity)	16.4	19.3	17.2	16.0	17.3
NITRATE & NITRITE NITROGEN	0.08	0.14	< 0.05	< 0.05	< 0.05
TOTAL KJELDAHL NITROGEN	0.28	1.25	0.21	0.29	0.31
TOTAL PHOSPHORUS	0.007	0.014	0.007	0.011	0.010
CONDUCTIVITY (μ mhos/cm)	242.4	286.8	226.0	226.0	217.0
APPARENT COLOR (cpu)	13	15	10	15	15
MAGNESIUM			1.50		
CALCIUM			10.5		
SODIUM			24.0		
POTASSIUM			2.60		
CHLORIDE	52	62	49	48	46
SULFATE	11	12			
TN : TP	51	99	30	26	31
CALCITE SATURATION INDEX			1.6		

All results in mg/L unless indicated otherwise

TROPHIC CLASSIFICATION: 1986

D.O.	S.D.	PLANT	CHL	TOTAL	CLASS
4	1	3	0	8	Meso.

COMMENTS:

1. The whole water phytoplankton was 60% greens and 25% Cryptomonads. Tiny green flagellates were dominant (50%).

2. This pond was previously surveyed in 1976, and it was oligotrophic at that time. The change in trophic status was due to increased plant growth (sparse to abundant), and less bottom dissolved oxygen (6.3 mg/L at 9.7m vs 1.0 mg/L at 15m). The change in oxygen was probably due primarily to a greater sampling depth and not to a real change in water quality.

3. The lake was sounded in 1981. It was not resounded in 1986.

4. This is an extremely developed lake, located adjacent to Interstate 93.

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LAKE TROPHIC DATA

MORPHOMETRIC:

Lake:	COBBETTS POND, STN 2	Lake Area (ha):	139.50
Town:	WINDHAM	Maximum depth (m):	19.2
County:	Rockingham	Mean depth (m):	5.2
River Basin:	Merrimack	Volume (m^3):	7208000
Latitude:	42°48' N	Relative depth:	1.4
Longitude:	71°17' W	Shore configuration:	1.77
Elevation (ft):	177	Areal water load (m/yr):	---
Shore length (m):	7400	Flushing rate (yr^{-1}):	0.40
Watershed area (ha):	828.8	P retention coeff.:	0.80
% watershed ponded:	0.0	Lake type:	natural w/ dam

BIOLOGICAL:	5 March 1987	22 July 1986
DOM. PHYTOPLANKTON (% TOTAL) #1	RHIZOSOLENIA 56%	DINOBRYON 65%
#2	ASTERIONELLA 38%	ASTERIONELLA 25%
#3		
PHYTOPLANKTON ABUNDANCE (cells/mL)		1030.0
CHLOROPHYLL-A (µg/L)		3.00
DOM. ZOOPLANKTON (% TOTAL) #1	KERATELLA 31%	NAUPLIUS LARVAE 47%
#2	POLYARTHRA 29%	KERATELLA 21%
#3	NAUPLIUS LARVAE 25%	
ROTIFERS/LITER	33	59
MICROCRUSTACEA/LITER	14	129
ZOOPLANKTON ABUNDANCE (#/L)	48	190
VASCULAR PLANT ABUNDANCE		Abundant
SECCHI DISK TRANSPARENCY (m)		5.4
BOTTOM DISSOLVED OXYGEN (mg/L)	7.4	0.5
BACTERIA (fecal col., #/100 ml) #1		< 10
#2		60
#3		

SUMMER THERMAL STRATIFICATION:

stratified

Depth of thermocline (m): 6.2
Hypolimnion volume (m^3): 385000

CHEMICAL:

Lake: COBBETTS POND, STN 2
Town: WINDHAM

	5 March 1987		22 July 1986		
DEPTH (m)	6.0	12.0	2.0	7.0	11.0
pH (units)	6.9	6.8	7.3	7.1	6.7
A.N.C. (Alkalinity)	17.9	18.1	17.7	17.7	20.1
NITRATE & NITRITE NITROGEN	0.06	0.08	< 0.05	< 0.05	< 0.05
TOTAL KJELDAHL NITROGEN	0.33	0.60	0.29	0.29	0.50
TOTAL PHOSPHORUS	0.023	0.008	0.008	0.009	0.017
CONDUCTIVITY (μ mhos/cm)	234.3	240.4	230.0	230.0	258.0
APPARENT COLOR (cpu)	8	11	10	15	15
MAGNESIUM			1.60		
CALCIUM			11.0		
SODIUM			25.0		
POTASSIUM			2.70		
CHLORIDE	49	51	50	50	56
SULFATE	10	10			
TN : TP	17	85	36	32	29
CALCITE SATURATION INDEX			1.7		

All results in mg/L unless indicated otherwise

TROPHIC CLASSIFICATION: 1986

D.O.	S.D.	PLANT	CHL	TOTAL	CLASS
4	1	3	0	8	Meso.

COMMENTS:

1. The whole water phytoplankton was 65% greens and 20% diatoms. Tiny green flagellates were dominant (50%).

2. See Station 1 for additional comments.

FIELD DATA SHEET

LAKE: COBBETTS POND, STN 1 TOWN: WINDHAM
DATE: 07/22/86 WEATHER: CLEAR & WARM, LIGHT BREEZE

	DEPTH (M)	TEMP (°C)	*DISSOLVED OXYGEN	OXYGEN SATURATION
	0.1	24.3	8.5	100 %
	1.0	24.1	8.5	100 %
	2.0	24.0	8.5	100 %
	3.0	23.9	8.5	97 %
	4.0	23.5	8.2	94 %
	5.0	22.0	8.1	92 %
	6.0	20.0	8.4	91 %
	7.0	17.0	9.5	97 %
	8.0	14.0	9.4	90 %
	9.0	12.2	7.8	71 %
	10.0	10.4	5.5	48 %
	11.0	9.1	2.0	17 %
	12.0	8.7	1.5	12 %
	13.0	8.2	1.5	12 %
	14.0	8.1	1.2	10 %
	15.0	8.1	1.0	8 %

SECCHI DISK (m): 6.3 COMMENTS:

BOTTOM DEPTH (m): 15.5

TIME: 1230

*Dissolved oxygen values are in mg/L

FIELD DATA SHEET

LAKE: COBBETTS POND, STN 2 TOWN: WINDHAM
DATE: 07/22/86 WEATHER: CLEAR & WARM, LIGHT BREEZE

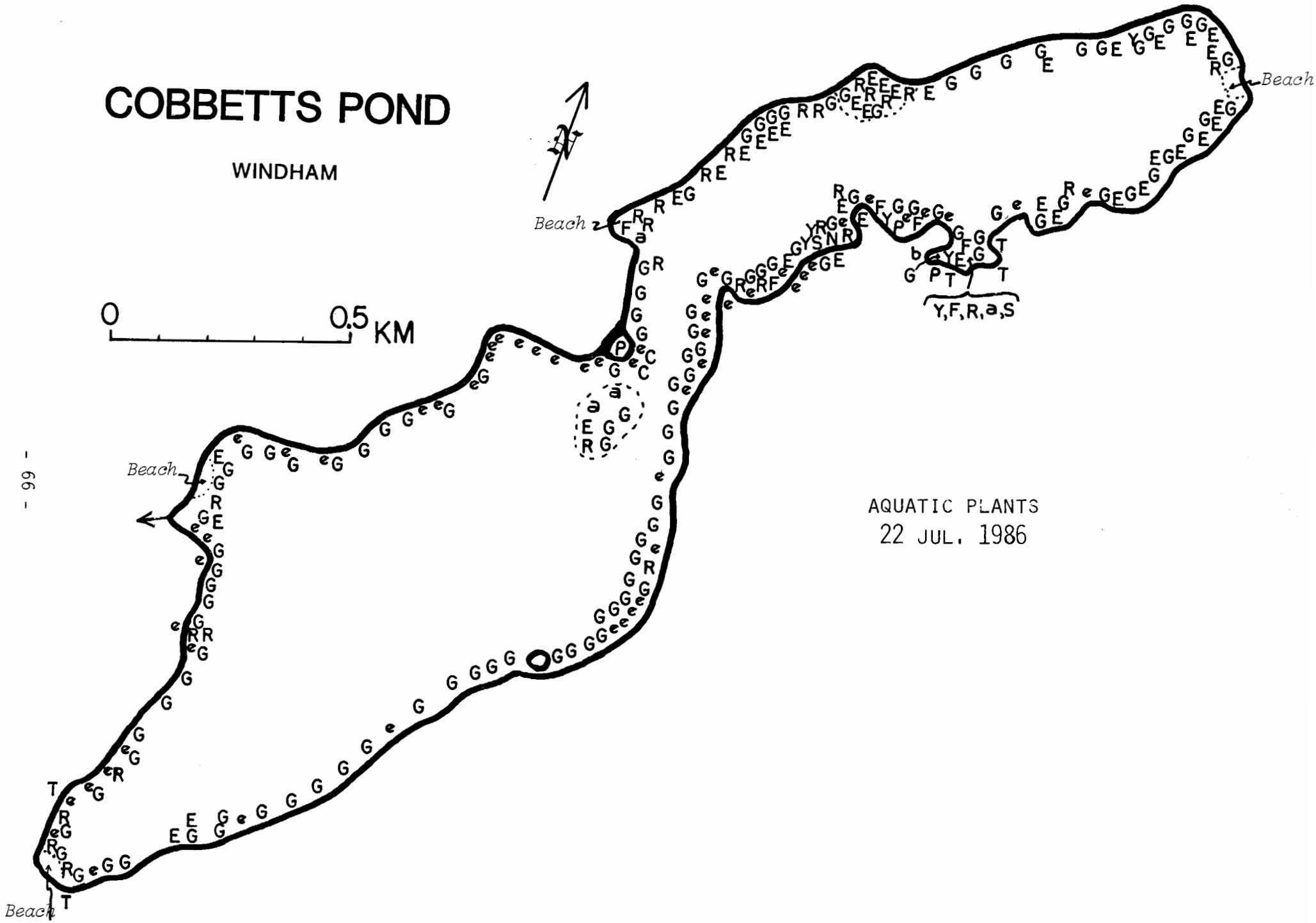
	DEPTH (M)	TEMP (°C)	*DISSOLVED OXYGEN	OXYGEN SATURATION
	0.1	25.0	9.0	107 %
	1.0	24.8	9.0	106 %
	2.0	24.1	8.2	96 %
	3.0	24.0	7.4	87 %
	4.0	23.0	7.2	82 %
	5.0	21.4	7.0	78 %
	6.0	18.0	8.1	85 %
	7.0	14.1	8.5	81 %
	8.0	11.5	7.6	67 %
	9.0	9.9	4.5	38 %
	10.0	8.2	1.5	12 %
	11.0	7.1	0.5	4 %
	12.0	7.0	0.5	4 %

SECCHI DISK (m): 5.4 COMMENTS:

BOTTOM DEPTH (m): 12.5

TIME: 1345

*Dissolved oxygen values are in mg/L


COBBETTS POND
WINDHAM
0
0.5 KM
Beach
Beach
Beach
Beach
Y,F,R,a,S
AQUATIC PLANTS
22 JUL. 1986

AQUATIC PLANT SURVEY

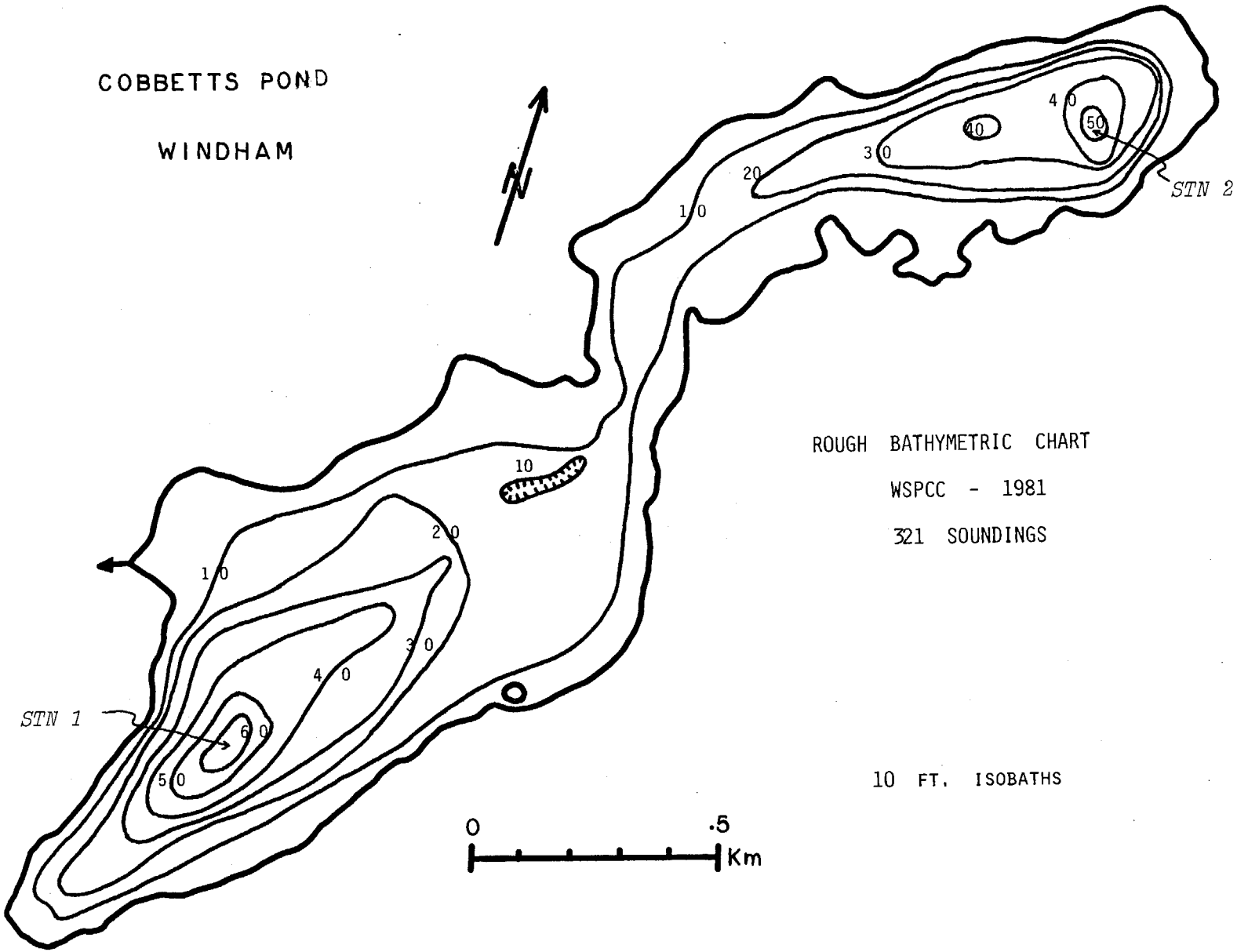
LAKE: COBBETTS POND TOWN: WINDHAM DATE: 07/22/86

Key	PLANT NAME		ABUNDANCE
	GENERIC	COMMON	
G	Potamogeton perfoliatus	Pondweed	Abundant
E	Elodea nuttallii	Waterweed	Common
e	Eriocaulon septangulare	Pipewort	Common
R	Potamogeton robbinsii	Robbins pondweed	Common
F	Nymphoides cordatum	Floating heart	Scattered
T	Typha	Cattail	Sparse
a	Potamogeton natans	Floating-leaf pondweed	Sparse
Y	Nuphar	Yellow water lily	Sparse
S	Sparganium	Bur reed	Sparse
P	Pontederia cordata	Pickerelweed	Sparse
N	Nymphaea	White water lily	Sparse
b	Scirpus	Bulrush	Sparse
C	Chara	Stonewort	Scattered

OVERALL ABUNDANCE: Abundant

GENERAL OBSERVATIONS:

1. In 1976 plant growth was sparse. In 1981 the lake was sounded and no unusual plant growth was observed. In 1985 a plant survey was conducted in response to a complaint, and the entire shore of the pond was ringed with Potamogeton perfoliatus. The abundance of this plant was confirmed in the above 1986 survey. The plant was not observed at all in the 1976 survey.



ROUGH BATHYMETRIC CHART

WSPCC - 1981

321 SOUNDINGS

10 FT. ISOBATHS